

CLAIMS

What is claimed is:

- 1 1. A pixel circuit comprising:
 - 2 a photodetector connected to a first node;
 - 3 a dual-driver MOSFET having a gate connected to the first node;
 - 4 a reset MOSFET having a first leg connected to the first node and a second leg connected to a second node;
 - 5 an access MOSFET having a first leg connected to a row bus and a second leg connected to the second node;
 - 6 a row select MOSFET having a first leg connected to the dual-driver
 - 7 MOSFET and a second leg connected to a column bus;
 - 8 an access supply connected to the row bus;
 - 9 a source supply connected to the column bus; and
 - 10 a reset supply connected to a gate of the reset MOSFET;
 - 11 wherein the MOSFETs all have the same polarity.
- 1 2. The pixel circuit of Claim 1, wherein the photodetector is a photodiode.
- 1 3. The pixel circuit of Claim 2, wherein the access supply comprises a current
- 2 source that is a distributed feedback amplifier when connected to the MOSFETs.
- 1 4. The pixel circuit of Claim 3, wherein the feedback amplifier is a cascaded
- 2 inverter.
- 1 5. The pixel circuit of Claim 4, wherein the reset supply produces a tapered
- 2 waveform.
- 1 6. The pixel circuit of Claim 5, wherein the source supply comprises an
- 2 operational amplifier, a bias transistor and a mode transistor.
- 1 7. The pixel circuit of Claim 6, wherein the MOSFETs are N-type MOSFETs.

1 8. An active pixel sensor array having a plurality of pixel sensors, each pixel
2 sensor comprising:
3 a photodiode connected to a first node;
4 a dual-driver MOSFET having a gate connected to the first node;
5 a reset MOSFET having a first leg connected to the first node and a
6 second leg connected to a second node;
7 an access MOSFET having a first leg connected to a row bus and a
8 second leg connected to the second node;
9 a row select MOSFET having a first leg connected to the dual-driver
10 MOSFET and a second leg connected to a column bus;
11 an access supply connected to the row bus, the access supply
12 comprising a distributed feedback amplifier;
13 a source supply connected to the column bus; and
14 a reset supply connected to a gate of the reset MOSFET, the reset
15 supply producing a tapered reset waveform;
16 wherein the MOSFETs all have the same polarity.

1 9. The pixel array of Claim 8, wherein the source supply comprises an
2 operational amplifier, a bias transistor and a mode transistor.
1 10. The pixel array of Claim 9, wherein the MOSFETs are N-type MOSFETs.
1 11. A CMOS image sensor of the type having a plurality of active pixel
2 sensors arranged in rows and columns and connected to row and column buses, the
3 improvement comprising an access supply connected to a column bus, the access
4 supply comprising a current source configured as a distributed feedback amplifier.